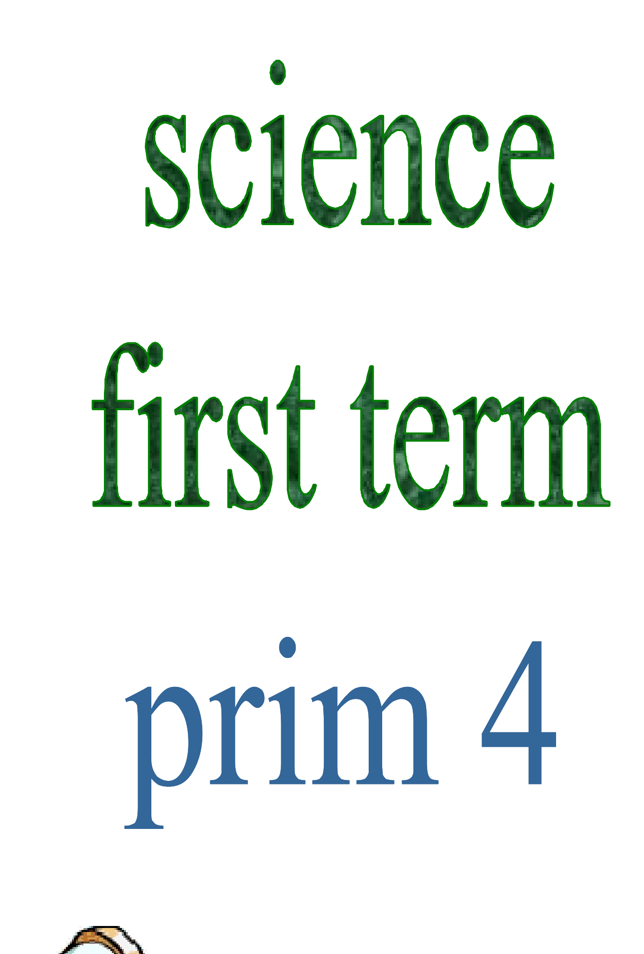


By



Abo sheashaa

Good luck



Matter

It is everything that has a **mass** and occupies a **space** (a **volume**).

Mass : It is the amount of matter in an object.

Volume : It is the space occupied by matter.

Volume = Length x **Width** x **High** — Cubic centimeter (cm^3), Cubic meter (m^3)

Equal volumes of different materials have different masses.

- **Common balance** estimates (measures) the big mass.
- **Sensitive balance** estimates (measures) the small mass.
- **Graduated cylinder** is used to measure the volumes.
- **Measuring ruler** is used to measure the length.
- **Graduated tape** is used to measure the length.

1 kilometer (Km) = **1000** meters (m)
1 meter (m) = **100** centimeters (cm).
1 ton = **1000** kilograms (kg).
1 kilogram = **1000** grams (g).
1 Liter = **1000** ml = 1000 cm^3. Cub



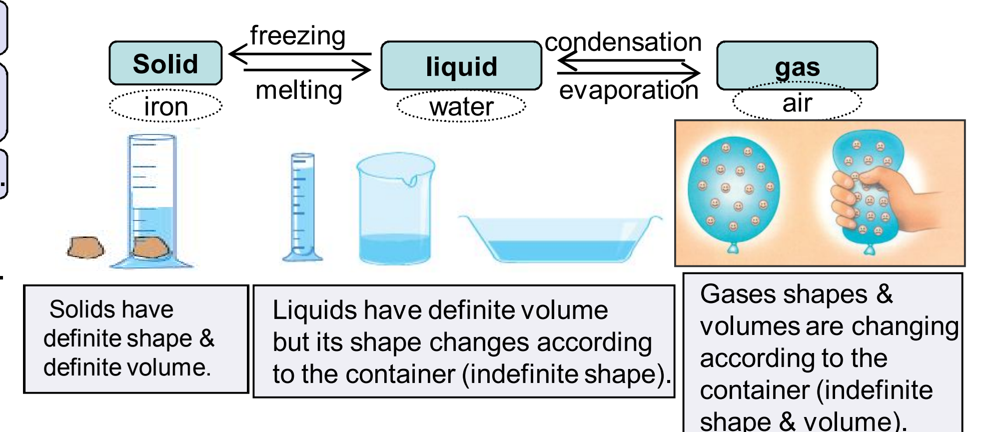
The volume = V2 – V1 = …..cm^3

	Measuring tools	Measuring units
mass	Common balance Sensitive balance	Ton Kilogram gram
length	Measuring ruler Graduated tape	Kilometer Meter centimeters
volume	Graduated cylinder	Liter ml Cubic centimeter



States of matter

There are three states of matter at the room temperature solid , gas and liquid .



Solids have definite shape & definite volume.

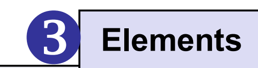
Liquids have definite volume but its shape changes according to the container (indefinite shape).

Gases shapes & volumes are changing according to the container (indefinite shape & volume).

Melting	it is the change of matter from a solid into a liquid state by heating.
Condensation	it is the change of matter from a gaseous state into a liquid by cooling.
Freezing	it is the change of matter from a liquid state into a Solid one by Cooling.
Evaporation	it is the change of matter from a liquid state into a gaseous one by heating.







3 Elements

The Element: It is the structural unit of matter, and it is the simplest form of matter that can not be decomposed into two substances or more. العنصر هو الوحدة البنائية للمادة وأبسط شكل لها الذي لا يمكن أن ينحل إلى عنصرين أو أكثر

Give reason:- Sulphur is an element?
Because it cannot be decomposed into two substances or more.

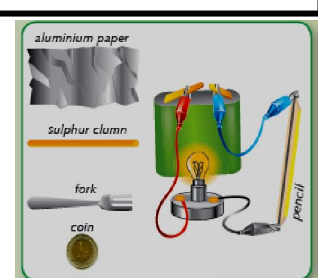
Metals	Non-metals
• have luster • good conductors of electricity • good conductors of heat • high melting point • Malleable and ductile • all of them are solids except mercury which is a liquid	• have no luster • bad conductors of electricity except carbon • Bad conductors of heat • low melting Point • not malleable or ductile • They are solids , liquids or gases
Iron - copper - aluminum- gold –silver and zinc	Carbon and sulphur

Give reason

Gold and silver are used in making jeweler ?
Because they are malleable and ductile .

Copper is used in manufacture of electric wires ?
Because copper is good conductor of electricity .

Cooking pans are made of Aluminum?
Because aluminum is good conductor of heat .



Handles of cooking pots are made of wood or plastic?
Because wood and plastic are not conductor of heat .

Carbon is non metal although it is used in making the electrode of dry cell?
Because it is good conductor of electricity.

When making an electric circuit with a foil paper the electric lamp lights but when making an electric circuit with Sulphur crystal the electric lamp doesn't light?
Because foil paper is a good conductor of electricity but sulphur is not conductor of electricity .

Scientific term	definition
Matter	It is everything that has a **mass** and occupies a **space** (a **volume**).
Mass	It is the amount of matter in an object.
Volume	It is the space occupied by matter.
Melting	it is the change of matter from a solid into a liquid state by heating.
Condensation	it is the change of matter from a gaseous state into a liquid by cooling.
Freezing	it is the change of matter from a liquid state into a Solid one by Cooling.
Evaporation	it is the change of matter from a liquid state into a gaseous one by heating.
The Element	It is the structural unit of matter, and it is the simplest form of matter that can not be decomposed into two substances or more.







4 Physical and chemical changes of matter

physical change:

It is a change in the appearance of a matter without a change in its structure.

examples

- Dissolving of sugar / salt.
- Malleability, ductility and bending elements
- Melting of substances

chemical change:

It is the change in the structure of a substance producing a new substance with different properties .(Structure changed)

examples

- Burning (charring) of substances (paper - wood – candle - fuel - sugar).
- Iron rust. صدأ


Tip

physical change أي تغير يمكن أن يعود إلى حالته الأولى يعتبر تغير فيزيائي
chemical change أي تغير لا يمكن ان يعود إلى حالته الأولى هو تغير كيميائي

Give reason:-

1. Dissolving salt in water is considered a physical change?
Because It is a change in the appearance (shape) of salt without a change in its structure.

2. Melting of ice is a physical change?
Because It is a change in the appearance of ice without a change in its structure.

3. Melting of wax is a physical change?
Because It is a change in the appearance of wax without a change in its structure.

4. Burning of paper is considered a chemical change?
Because the paper structure is changed .

5.Changing the sugar flavor after heating it strongly on a burning spoon?
Because its structure changes. It's a chemical change.

6. Sugar keeps its flavor after dissolving it in water.
Because its structure does not change. It's a physical change .

5 Chemical Changes Applications

1- Combustion process:

It is a chemical change happens as a result of the presence of a plenty of oxygen in air and increasing temperature of burning substances to its ignition point.

Combustion is a chemical change needs:

- Plenty of oxygen in air.
- Increase of temperature of burning substances to their ignition points. نقطة الاشتعال

Harms of combustion: Burning produces different gases that pollute the environment.

To extinguish fires we use:

- Water to decrease the temperature of fire.
- sand and heavy covers to separate air from the fire.
- Fire extinguishers.

2- Iron rust :

It is a chemical change .occur when iron is left in wet (humidity) & air (oxygen). Chemical change is a brittle brown layer from a new substance (iron oxide) is formed.

Iron rust is a chemical change needs:

- Oxygen (air)
- water vapour (wet) رطوبة

Harms of iron rust:
Destroy a huge quantity of buildings and machines.

Protection of iron from rust: By separating iron from wet air by

- Painting it.
- Adding other metals to iron such as stainless steel products
- Coating iron by a layer of tin.

Lesson 1
Measuring tools

1- complete the following sentences:-

- A matter has …….. and ………………………………….
- kilogram is the unit of measuring ……………………….
- Meter is the unit of measuring ………………………….
- Ton is the unit of measuring ……………………………..
- Cubic centimeter is the unit of measuring ……………….
- Measuring tape is used for ………………………………..
- Common balance is used for measuring …………………
- Sensitive balance is used for ………………………………
- Graduated cylinder is used for ………………………..
- Measuring ruler is used for measuring ……………………
- Equal volumes of different materials have different ……………………
- Matters are similar in having ……………,…………..
- The amount of material that the object contains is ………………..
- ………….is used to estimate Volume of Liquids.
- From units of Mass are ………… & …………
- 2 Kg = …………. Grams.
- Meter is the unit of Measuring ………….. but (Kg) is the unit of …………….
- …………….…….is used to measure small length, while …………..…….measures large length
- We estimate the Mass of chemical materials & gold by using ………………………..
- the Mass of fruit is measured by ……………... but mass of Jewelry by …………….………

2- choose the correct answer :-

- A stone is put in a jar containing 30 cm^3 of water , water level raises in the jar up to 50 cm^3 , so that the volume of the stone equals ………
  (20 cm^3 - 50 cm^3 - 30 cm^3 – 80 cm^3) .
- your classmate placed a piece of iron into a 50 cm^3 beaker كأس filled completely by water of volume 20 cm^3 is poured سكب out the beaker. The volume of this piece equals ……
  (20 cm^3 - 50 cm^3 - 30 cm^3 – 80 cm^3) .
- the volume of the matter is measured by …….
  (cm - cm^2 - cm^3).
- we can determine the volume of irregular shaped small stone that doesn't dissolve in water by using ……..............…
  (a glass beaker - a measuring cylinder – a common balance – a graduated ruler)
- a pupil placed four marbles of equal volume in a 100 cm^3 graduated cylinder containing water. The water level raised up to 120 cm^3, what is the volume of each marble ?
  (30 cm^3 - 25 cm^3 - 20 cm^3 - 5 cm^3)



4- What is the matter ?

……………………………………………………………

5- Define the Mass.

…………………………………………………………..

6- Define the Volume.

……………………………………………………………

<u>7- Write the scientific term:-</u>

- Every thing that has a mass & occupies a space (volume). ………………..
- The amount of matter in an object. ………………..
- The space occupied by matter. ………………..
- A unit of measuring small lengths. ………………..
- A device of measuring small mass as gold and silver. …………….
- A device used to estimate volume of liquids & irregular solid body. …………………………
- A unit of measuring small mass. ……………………….

Lesson 2

States of matter

<u>1- Complete the following:-</u>

- States of matter are ………. , ……….. and ……………
- There are a definite shape and a definite volume in the …………… state.
- Matter can be pressed in case of its ……….state.
- Matter that takes the shape of its container and its volume can not be changed is ………….
- On transferring water from one pot to another, its shape …………………………….
- Iron has ………….state at ordinary Temp. But water is …………….
- ………..substances have definite shape & volume.
- Liquids have definite …………. & indefinite ……………….
- On transferring water from one container to another its shape will ……….
- Molecules of ………..…are very closed, but in ……….. are very far.
- Matter can be pressed in case of its …………………..state.
- When we pour water from container (A) into (B) , then into (C) ,the
  a. Volume of water in container (A) is ………………
  b. Shape ………………….



2-Give reason:-

1) On putting a mixture of gravels الحصى and water in a refinery مصفاة with minute holes water passes while gravels remain in the refinery?

……………………………………………………………

……………………………………………………………

2) On making tea water drops are formed on the cover of a teapot from inside?

……………………………………………………………

……………………………………………………………

3) Water freezes when it is put in the freezer?

……………………………………………………………

……………………………………………………………

4) The decrease in the amount of water in a teapot when it is boiled for some time?

……………………………………………………………

……………………………………………………………

5) Formation of water drops on the outer surface of a bottle filled with ice?

……………………………………………………………

……………………………………………………………

6) The washed clothes become dry after exposing them to the heat of the atmosphere?

……………………………………………………………

……………………………………………………………

7) Gaseous matter is compressed and packed in cylinders?

……………………………………………………………

……………………………………………………………

8) A piece of copper has a definite shape when we carry it from a vessel to another one?

……………………………………………………………

……………………………………………………………

9) The glass bottle which is put in the freezer of the refrigerator should not be full of water?

……………………………………………………………

……………………………………………………………

10) Salt is solid while oil is liquid?

……………………………………………………………

……………………………………………………………

11) Wood has a definite shape and volume?

……………………………………………………………

……………………………………………………………

12) Air is a gaseous matter?

……………………………………………………………

……………………………………………………………

13) Oxygen has indefinite shape and volume?

……………………………………………………………

……………………………………………………………

14) Ice change into water if a beaker of ice exposed to air?

……………………………………………………………

……………………………………………………………

3- What the meant by or define:-

a. Melting.

……………………………………………………………………

b. Condensation.

……………………………………………………………………

c. Evaporation.

……………………………………………………………………

d. Freezing.

……………………………………………………………………

4- Write the scientific term:-

1.A state of matter that has definite shape &volume.

…………………

2. A state of matter that has indefinite shape &volume.

…………………………..

3. A state of matter that takes the shape of the container only. …………………………..

4. A state of matter that takes the shape & the volume of the container. ………………………

5. The change of matter from solid to liquid by heating.

…………………………

6.The change of matter from liquid to gas by heating.

…………………………

7.The change of matter from gas to liquid by cooling.

………………………………..

8.The change of matter from liquid to solid by cooling.

…………………………………..

5- Complete:-

1) When the solid ……….., it becomes liquid.
2) Water vapor changes into ……….. by ……………
3) If a liquid freezes, it becomes ………………
4) … …………..is the solid state of water.
5) Water condenses if it touches ………………surface.

……………… ………………
Solid ⇄ liquid ⇄ gas
……………… ………………

6- CHOOSE THE CORRECT ANSWER:

1- the change of the water from the liquid state into ice accompanied with:
(an increase in mass – an evaporation – an increase in temperature – a decrease in temperature)

2- the change of matter from the liquid state inti the gaseous state is called :
(condensation – evaporation – melting – freezing)

3- cooling is accompanied with ……….process.
(melting – condensation – evaporation)

4- gold industries need ………… Process.
(condensation – evaporation – melting – cooling)

Lesson 3
Elements

1- Complete:-

1) We use ……………….. In manufacturing jewels.

2) We use ……………….. In manufacturing bridges

3) poles of electric cells are made up of ………………

3) If a liquid freezes, it becomes ………………

4) All the materials you see in your environment are made up of ……………and …….

5) The group of elements that have luster is known as ………

6) The group of elements that doesn't have luster is known as……………………...

7) The group of elements that have luster is known as………………

8) The group of elements that does not have luster is known as………………

9) All non metals elements are bad conductors for electricity except ……………

10) All metals are solid except ……………..is …………………

11) The group of elements that have high melting & boiling points is known as………………

12) The group of elements that have low melting & boiling points is known as………………

13) Copper, iron, oxygen & are examples for ………………

14) Iron, copper, aluminum, gold, silver & lead are examples for ……………..

15) Mercury is an example for ……………..

16) Sulphur , carbon & phosphorus are examples for ……………………..

17) Bromine is an example for…………………

18) Oxygen and nitrogen are examples for …………….

2- Define:-

1. Metals.

……………………………………………………………

2. Non metals.

……………………………………………………………

3- Write the scientific term:-

1. A group of elements having luster, good conductors of electricity and heat , high melting point , malleable and ductile , all of them are solids except mercury which is a liquid.
2. A group of elements that does not have luster, bad conductors of heat and electricity except carbon , low melting point ,not malleable and ductile .

Give reason:-

1. Gold and silver are used in making jeweler?

……………………………………………………………

……………………………………………………………

2. Copper is used in manufacture of electric wires?

……………………………………………………………

……………………………………………………………



3. Cooking pans are made of Aluminum?

……………………………………………………………………..

……………………………………………………………………..

4. Handles of cooking pots are made of wood or plastic?

……………………………………………………………

……………………………………………………………

5. Carbon is non metal although it is used in making the electrode of dry cell?

……………………………………………………………

……………………………………………………………

6. When making an electric circuit with a foil paper the electric lamp lights but when making an electric circuit with Sulphur crystal the electric lamp doesn't light?

……………………………………………………………

……………………………………………………………

7. We mustn't <u>approach</u> نقترب a nail to an electric source?

……………………………………………………………

……………………………………………………………

8. The melting point of iron nail is higher than that of Sulpher crystals?

……………………………………………………………

……………………………………………………………

9. Copper is used in making statues and metallic coins?

……………………………………………………………

……………………………………………………………

10. Car chassis, doors and bridges are made of metals not of non metals?

……………………………………………………………

……………………………………………………………

11. The electrician stands on wooden chair when he makes some electrical repairs?

……………………………………………………………

……………………………………………………………

12. Iron is used in making lamp posts?

……………………………………………………………

……………………………………………………………

<u>Complete:-</u>

The volume of the box shown in the figure = ... cm^3

(20 - 25 - 30)

2 cm
2 cm
5 cm

Lesson 4
Physical and chemical changes of matter

Question (1): Complete the following sentences:

1- Burning of wood is considered as a …………….. change .
2- Melting of ice is considered as a .... Change.
3- Boiling of water and its vapour release is considered as a ……………………..change
4- Chemical change is a change in …………………....
5- Rotten of fruits and their fermentation is considered as a ……………………......change.
6- The group of elements that doesn't have luster is known as ....
1. The changes that may occur to matter are …………………………..&………………………
2. Melting of a candle is a …………….. , while burning of a candle is ……………………..
3. Rusting of iron is formed due to the reaction between ……. and both…………….. and ………………..
4. Give examples on a Physical change.
……………………………………………….
…………………………………………………..
……………………………………………….
5. Give examples on a Chemical change.
………………………………………………..
…………………………………………………
………………………………………………...
………………………………………………..

Question (2): choose the correct answer:

1- Adding table salt to water with stirring produces ...
A- a new substance **B-** a physical change
C- a chemical change.

2- .... Is an example of the physical changes.
A- Burning of a candle **B-** Iron rust
C- Dissolving of sugar in water

3- Putting a bottle of water in the freezer of a refrigerator for a period of 24 hours causes a .... to water
A- physical change **B-** change in structure
C- chemical change

4- Adding yeast in baking is considered a .....
A- physical change **B-** chemical change
C- change in appearance تغير فى الشكل

5- All of the following are chemical changes except ....
A- exploding of fire works **B-** burning of coal
C- formation of a salty solution

Question (3): compare

1- Melting of wax to burning of wax

2- Dissolving of sugar to burning of sugar



Question (4): Which of the following is a chemical change and which is a physical change and give reasons

1- Paper recycling.

…………………………………………………………………

2-Melting of chocolate.

…………………………………………………………………

3- Production of yoghurt from milk.

…………………………………………………………………

Question (5): Give reason:-

1. Dissolving salt in water is considered a physical change?

…………………………………………………………………

…………………………………………………………………

2. Melting of ice is a physical change?

…………………………………………………………………

…………………………………………………………………

3. Melting of wax is a physical change?

…………………………………………………………………

……………………………………………………………

4. The change of water into ice is a physical change?

…………………………………………………………………

…………………………………………………………………

5. Burning of paper is considered a chemical change?

…………………………………………………………………

…………………………………………………………………

6. Burning of wood is considered a chemical change?

…………………………………………………………………

…………………………………………………………………

7. Formation of a layer of rust on the surface of wet iron wire?

…………………………………………………………………

…………………………………………………………………

8. Changing the sugar flavor after heating it strongly on a burning spoon?

…………………………………………………………………

…………………………………………………………………

9. Fermentation of milk is a chemical change?

………………………………………………………………

…………………………………………………………………

10. Burning a piece of sugar is considered a chemical change?

…………………………………………………………………

…………………………………………………………………

11. Sugar keeps its flavor after dissolving it in water?

…………………………………………………………………

…………………………………………………………………

12. A black substance is produced after burning a piece of paper?

…………………………………………………………………

…………………………………………………………………

13. Formation of clouds and rains is a physical change?

…………………………………………………………………

…………………………………………………………………

14. Burning a piece of bread is a chemical change?

…………………………………………………………………

…………………………………………………………………

15. Rusting of iron is considered a chemical change?

…………………………………………………………………



Lesson 5
Chemical Changes Applications

Question (1) : choose the correct answer:

1- All of the following are examples of chemical changes except …….............

A- burning of coal **B-** forests fires
C- melting of wax

2- Burning needs a plenty of oxygen and the substance that can be burnt and ....

A- decrease in temperature **B-** increase in temperature
C- separation of air

3- Burning of garbage to get rid of it, is a bad behavior because it ....

A- decreases the pollution of environment.
B- increases oxygen of air.
C- increases the pollution of environment.

4- The factors causing iron rust are the presence of oxygen and ……...............

A- nitrogen **B-** water vapour **C-** dry air.

5- Stainless steel products are produced from adding .... to iron.

A- paints **B-** zinc **C-** another metal.

6- All of the following ways are used in protecting iron from rust except ....

A- painting by oil **B-** spraying by oil
C- exposing it to wet air.

Question (2): What is meant by?

1- Combustion process.

……………………………………………………………………

2- Separation of iron.

……………………………………………………………………

3- Iron rust formation.

……………………………………………………………………

Question (3):

Factors effected on combustion process are ………………..,……………………….&…………………..

Question (4):

Factors effected on iron rust formation are …………………..&………………………..

Q5 - Give reason:-

1. We store iron in dry places.

....

2. Separation of iron.

……………………………………………………………………

3. To extinguish fires we use water.

……………………………………………………………………

4. To extinguish fires we use Sand & heavy cover.

……………………………………………………………………

5. Coating the outer surface by painting.

……………………………………………………………………

6. Adding another Metal to iron as Chromium & Nickel in order to produce stainless iron such as stainless steel. ……………………………………………

7. Coating iron by a layer of Zinc.

……………………………………………………………………



General exercise on unit (1)

Question (1): choose the correct answer:

1- The volume of the box shown in the figure = ... Cm^3 . **(20 - 25 - 30)**

2- When boiling water, it changes from ....

A- a solid state into a liquid one.

B- a liquid state into a gaseous one.

C- a gaseous state into a solid one.

3- On decreasing the temperature of water vapour, it ....

A- freezes. **B-** condenses. **C-** melts.

4- The carbon is characterized with: ....

A- good conductor of heat.

B- good conductor of electricity.

C- malleable and ductile.

5- The papers used in wrapping chocolate up shows the property of…………………….....

A- electricity conductivity **B-** the ability for melting

C- Malleability and ductility

6- which of the following is considered as a physical change?

A- Burning of fuel **B-** melting of a candle

C- Iron rust

7- The change produced as a result of malleability of copper into wires is the same change produced from ....

A- making bread **B-** melting of wax **C-** burning of coal

8- Aeration leads to the increase in coal burning because it ……...........

A- saves a large quantity of oxygen needed for burning.

B- increases the amount of burnt coal.

C- heats coal to its ignition point.

9- which of the following is considered a chemical change that happens to a piece of paper?

A- Bending it **B-** cutting it into pieces

C- burning it

10- which of the following is considered as an element?

A- Carbon dioxide **B-** Salty water

C- Oxygen

Question (2): complete the following statements:

1- changing of ice into water is considered a …………..... process.

2- Increasing the temperature of water to the boiling point produces ....

3- The continuity of decreasing water temperature changes it from the .... state to the .... state.

4- The substance that can't be decomposed into two substances or more is known as ……….............

5- Elements are classified into .... and ....

6- Group of ....has luster while the group of .... doesn't have.

7- Graphite is a form of .... and it is a good conductor of…………………..........

8- Ductility of copper into wires is considered a .... Change while iron rust is considered a .... change.

9- Melting of wax is a …………........... change while burning of wax is a ………….. ....change.

10- Burning of wood is considered a……. .... change.

11- Fuel of cars is …….......... and its burning for the purpose of cars movement is considered as a .... change.

12- On focusing the sun rays by a lens and directing them on a piece of paper, this leads to .... the temperature of paper to its .... point .

13- Directing water toward fires results in .... the temperature of the fires and leads to ………….........

14- .... gas is produced from using fire extinguisher that leads to .... the air from the fire.

15- From the factors that help in burning the fire .... and …………………..............

16- from the factors that lead to the formation of iron rust ………………......and ....

17- To protect iron from getting rusted, we must .... or ………………..........

Question (3):

What happen when ...... and give reason:

1- Putting a bottle of water in the freezer ?

…………………………………………………………………

2- Boiling of water and exposing the product to a cold surface?

…………………………………………………………………

3- Adding of yeast to dough then baking it?

…………………………………………………………………

4- Putting a piece of dry iron in a jar filled with a dry oxygen?

…………………………………………………………………

5- Putting a piece of wet iron in a jar filled with a dry oxygen?

…………………………………………………………………

6- Covering a fire by sand?

…………………………………………………………………

7- Increasing the temperature and melting the ice of the two poles?

…………………………………………………………………

8- leaving a dish containing salty water in the air for a period of time?

…………………………………………………………………

9- Putting a little sugar in a beaker over a flame?

…………………………………………………………………

10- Directing of water hoses by firemen toward the fire?

…………………………………………………………………

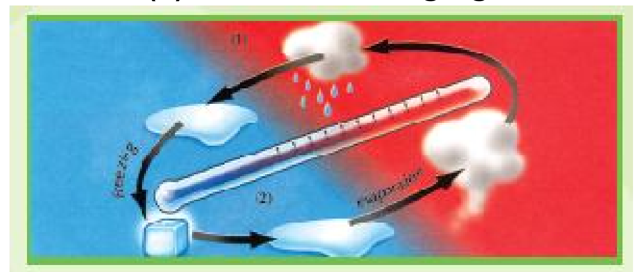
11- Increasing temperature of a combustible substance?

…………………………………………………………………

12- leaving the iron handles without Coating?

13- Coating iron by a layer of zinc?

Question (4): In the following figure:

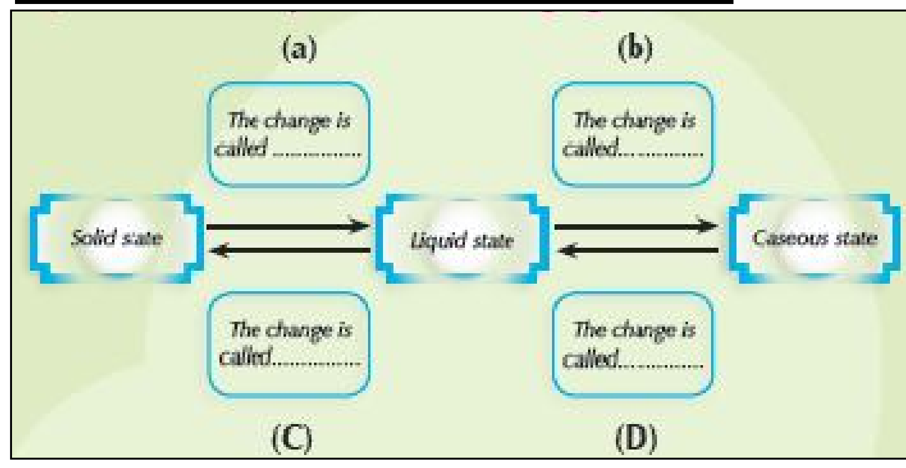


1- Number (1) is the change of matter from the.................. state to the .... one.

2- Number (2) is the change of matter from the ..... State to the…………….......... one.

3- Mention the type of change happening in this figure?

Question (5): complete the following figure:



Question (6):

Tamer has left a piece of iron wire which is used in cleaning cooking pots in water and after a period of time, he recorded his observations:

• What did Tamer observe?

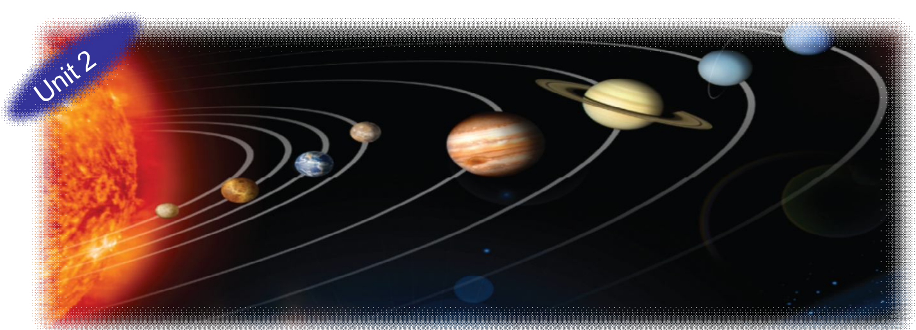
....

• Mention the type of change happens.

....

Question (7): Complete the following table:

The change	The type
Rotten فساد of fruits	
Production of yoghurt from milk	
Sweetening a lemon juice by sugar	
Cooking the food well	
Getting the table salt from salty water	
Melting of iron in iron ovens	
Adding of some elements to iron	



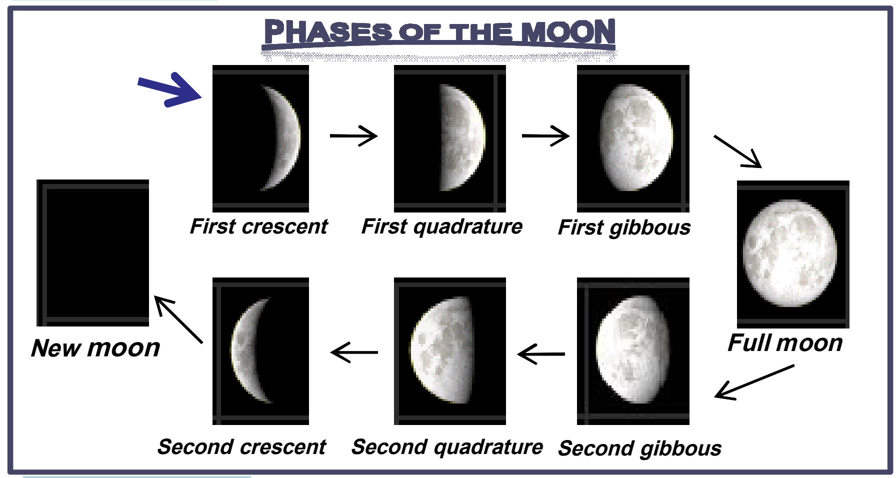
Solar system is consists of the sun , the planets , the moons and other celestial bodies.

Mercury	The nearest planet to the sun. (the smallest planet)
Venus	The most beautiful one.
Earth	The planet where we live.
Mars	The red planet.
Jupiter	The biggest planet.
Saturn	It has coloured rings around it.
Uranus	The coldest planet
Neptune	The blue planet.

Stars are lightning bodies with different shapes in the space.

The sun	It is a medium sized star. It revolves around its axis in the fixed position. It's radiates (emits) light and heat. It's the main source of heat and light on Earth.
Planets	They are dark bodies revolve around the sun in fixed oval orbits
The moon	It is a dark body revolves around itself. It revolves around the Earth every 28 days causing the phases of the moon. it reflects the sun light, thus it seems shiny.

The Earth	It rotates around its axis once every 24 hours causing sequence of day and night. It rotates around the sun once every year causing the sequence of seasons.



Give reason:-

The stars seems very small.
because they locate far apart from us.

The sun seems bigger to us than other stars.
Because the sun is nearer to us than other stars.

The moon seems shiny.
Because it reflects the sun light.

The hours of day is not equal the hours of night.
Because the axis of the earth is inclined.

The summer day is longer than the winter day.
Because the apparent orbit of the sun in summer is longer than the apparent orbit of the sun in winter .

The sun is a star.
Because it's a lighting body.

The Earth is a planet.
Because it is a dark body.

The sequence of day and night.
Because of the rotation of Earth around its axis.

The sequence of seasons.
Due to the rotation of Earth around the sun.

Formation the phases of the moon.
Due to the rotation of the moon around the Earth.

GEHAN





TIDE is the rising of water level that cover the seashores.
EBB is the returning back of the water to its normal level after the tide..

- ✓ Tide and ebb phenomenon is resulted from the attraction of . both the sun and the moon to the earth.
- ✓ The maximum of the tide is at the middle of the lanner month .(when moon is full).
- ✓ The turbines are rotated by the falling of water or by pushing of the wind to produce electricity.

هى محركات تدار بقوة دفع الماء او الهواء.

The benefits of tide and ebb

1) **Generating electricity:** the flowing of water during a tide and its retraction during an ebb, makes the turbines rotate to produce electricity.

2) **Cleaning the coasts:** water carries the wastes from coasts to the seas bottoms in where they are settled.

3) **Cleaning the water canals** to keep its depth.

4) **Ships and boats** access to the shallow water paths.

Give reason:-

Formation of tide and ebb.
because of the attraction of both the sun and the moon to the Earth.

weather

The expected condition of the atmosphere in an area during a short period of time not exceeding one week.

Some weather factors

- ✓ **Temperature** is measured by thermometers.
- ✓ **Atmospheric pressure** is measured by barometer.
- ✓ **Wind speed** is measured by Anemometer.
- ✓ **Wind direction** is measured by Vane.

Bad weather Phenomenon

- ✓ **Storm** is a strong winds.
- ✓ **Tornado** is a strong storm.
- ✓ **Torrent** is a heavy rain.

Weather phenomena	bad effects
Storms	- Causing damages in plants - Harmful for eyes and respiratory system - Decreasing the vision and affects the aviation.
Tornadoes	- Destroy buildings and trees. - Rising of the winds of the sea and destroy ships
Torrents	- Destroy the crops - Destroy buildings - Destroy the agricultural soil.





Safety precautions

1- Do not leave your house during storms. Or use a protective mask if you leave.
2- The aviation movement stops and change their ways during the dusty storms.
3- Observe the traffic on the highways.
4- Ships and fishing boats stop their activities.
5- Digging canals for passing of torrents.
6- Send warning notice to the threatened areas warning them from the arrival of storms or tornadoes to take the suitable safety precautions.
7- Raise the preparations measures in hospitals to receive cases of injuries
8- Paying attention to the general health to prevent the spread of epidemic diseases.

The components of the atmosphere

Gas	oxygen	nitrogen	Carbon dioxide	Other gases	Water vapour
ratios	21 %	78 %	0.03 %	0.97 %	Changing ratios

Oxygen

- ✓ It is necessary for the respiration of the living organism.
- ✓ it helps in burning fuels.
- ✓ The main source of oxygen on the Earth is the green plants during photosynthesis process

Carbon dioxide

- ✓ Green plants depend on carbon dioxide gas in the process of photosynthesis.
- ✓ it is used in making soda water.
- ✓ It helps in fire extinguish .

Nitrogen

- ✓ Decrease the effect of oxygen in the process of combustion.
- ✓ In the industry of ammonia and nitrogenous fertilizers.



Lesson 1
Solar System

Question (1):

1- the nearest planet to the sun is..................

A- The earth **B-** Mercury **C-** Neptune **D-** Jupiter

2- The biggest planet is..................

A- The earth **B-** Mercury **C-** Neptune **D-** Jupiter

3- The sun is a star because it.........

A- absorbs light **B-** reflects light
C- radiates light **D-** let light pass through

4- We see the moon shinning because it ....

A- absorbs light **B-** reflects sun light
C- radiates light **D-** lets light pass through it light

Question (2): complete the following:

1- The........ is located in the center of the solar system and there are......... revolving around it in definite orbitals.
2- The earth is located between .... and ....
3- The........ is the smallest plant while...... is the farthest planet From the sun.
4- Mars is known as .... , while Neptune is the ....
5- solar system is consists of …………. , ……………and ………….
6- The day is longer than the night in................
7- In.............. and .... the day equals the night.

Question (3): Give reasons:

1- The sun is a star while the earth is a planet.

2- The stars seem very small in size.

3- The moon is dark body but we see it shining.





Lesson 2
Rotation of the celestial bodies

Question 1:choose the correct answer:

1- The sequence of day and night is occurred due to ....

A- revolution of the earth around the sun.

B- rotation of the earth around its axis.

C- rotation of the sun around its axis.

2- The number of the day hours are equal to the number of the night hours in:

A- summer **B**- winter

C- spring **D**- all of the seasons

3- The sequence of the seasons of the year is occurred due to:

A- revolution of the earth around the sun.

B- rotation of the earth around its axis.

C- rotation of the sun around its axis.

Question 2:

Days	Time of sun rise		Time of sun set	
	Minute	Hour	Minute	Hour
First day	43	6	43	5
Second day	44	5	44	7

1- From the table above, calculate the day hours each time.
2- write the name of a suitable season for each day of the table.

Question 3: Look at the opposite drawing and answer the questions:

1- Is Egypt located in the northern or southern half of the earth?

2- According to the figure. Does Egypt pass day or a night?

3- If the number of day hours is 11 hours in Egypt. Which season does Egypt pass?



Lesson 3
Rotation of the moon

Question (1): Choose the correct answer:

1- The attraction of the earth and the moon results in ....

(A) day and night (B) seasons of the year

(C) tide and ebb (D) Phases of the moon

2- In the middle of the lunar month, the moon's phase is ....

(A) crescent (B) full

(C) first quadrature (D) second quadrature

3- We can depend on tides phenomena to generate.........

(A) electricity (B) petroleum (C) coal (D) natural gas

4- The phases of the moon is resulted from ....

(A) rotation of the earth around the sun

(B) rotation of the earth around its axis

(C) rotation of the moon around its axis

(D) rotation of the moon around the earth

5- The maximum tides when the moon is in the.........

(A) first quadrature (B) second quadrature

(C) crescent (D) full moon

Question (2): If you live in a coastal city, what is the phenomena used for generating electricity in your area? How?

Question (3): While visiting the coastal cities you observe the decay of the beaches. Determine the reasons of this decay (using scientific thinking) then suggest the suitable solutions.

Question (4): Explain the following cases:

1- The moon is dark object but we see it shining at night.

2- formation of tides

3- formation of the phases of the moon



Question (5): what are the benefit of tides



Lesson 4
The atmosphere and the weather

Question one: Choose the correct answer:

1- The speed of the wind is measured by: ....

(A) Thermometer **(B)** Anemometer

(C) Barometer **(D)** Vane

2- The barometer is used for measuring: ....

(A) The temperature **(B)** Wind speed

(C) Wind direction **(D)** Atmospheric pressure

3- A gas represents 51 of the volume of the atmosphere is

(A) Oxygen **(B)** Nitrogen

(C) Carbon dioxide **(D)** Hydrogen

4- A gas changes the clear lime water to milky is:

(A) Oxygen **(B)** Nitrogen

(C) Carbon dioxide **(D)** Hydrogen

Question two: Complete the following:

1- Green plants depend on .... gas in the process of photosynthesis.

2- Nitrogen gas is used in.................. and ....industries.

3- .... is used to determine the direction of the winds.

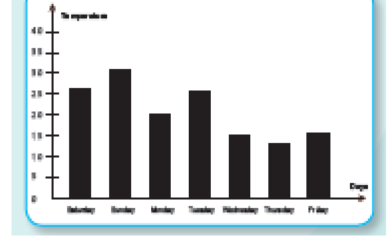
Question three: What is the importance of predication of the weather?

Question four: This graph shows the temperature of the days of this week:

What is the recorded temperature at- Tuesday?-

Which day the highest temperature- is recorded?-

- Which day is the coldest?



Lesson 5
Bad weather Phenomenon

Question one: choose the correct answer:

1- From the countries affected by muddy storms:
A- France **B**- Germany **C**- Saudia arabia **D**- Russia

2- from the countries affected by snowy storms..............
A- Egypt **B**- Sudan **C**- Saudia arabia **D**- Russia

3- We have to dig canals to face the dangers of:
A- tornadoes **B**- torrents **C**- volcanoes **D**- storms.

4- We must build houses over high places to protect the houses against ....
A- tornadoes **B**- torrents **C**- volcanoes **D**- storms.

Question (2): Complete the following:

1- The temperature rises during the blowing of .... storms and decreases during the blowing of .... storms.

2- The speed of the winds which causes the tornadoes is about ……............. Km/hour.

3- .... is an example of dusty storms in Egypt that blows in autumn.

4- Tornadoes blows due to .... and has the .... shape.

Question (3): fill the following table:

Weather phenomena	bad effects	Safty precautions
Storms		
Tornadoes		
Torrents		

Question (4): What are the suitable precautions in the following conditions:

1- Blowing of dusty storms in the area you live in.

2- Falling of heavy rains on some mountainous areas.



General exercises on Unit two

Question (1): choose the suitable word:

1- Stars are (shinning - dark) bodies with (equal - different) sizes. while the planets are (shining - dark) bodies.

2- The number of the planets in the solar system is (6 - 8) revolves around (the moon - the sun) in definite orbits.

3- The nearest planet to the sun is (Jupiter - Mercury) and the farthest planet is (Uranus - Nepton) while the biggest planet is (Juputer - Venus).

4- Day and night happen because of the rotation of the (sun - earth) around its axis while the seasons of the year happen because of the rotation of the (earth - moon) around the sun.

5- At the first week from the lunar month, the shape of the moon is (crescent - fullmoon) and in the middle of the month it is (crescent - fullmoon).

6- The percentage of oxygen in the atmosphere (78% - 21%) and the green plants use it in (respiration - photosynthesis) process.

7- The atmospheric pressure is measured by (barometer - anemometer) while the the speed of the wind is measured by (anemometer - vanes).

Question (2): Write the scientific term:

1- Dark objects revolve around the sun in fixed orbits.

2- Dark objects revolve around the earth and reflect the sun rays falling on them.

3- A phenomena resulting from the attraction between the earth and both of the moon and the sun.

4- Motion of the air from higher pressured areas to lower pressured areas.

5- Violent whirling winds resulting from the difference in the temperature on the earth.

6- Strong winds accompanied with cold and falling of ice.

Question (3): What is type of the phenomena resulted from:

1- Rotation of the earth around its axis.

2- Rotation of the earth around the sun.

3- Rotation of the moon around the earth.

4- The attraction between the earth and both of the moon and the sun.

5- Assembling rains in large amounts and its running from higher areas to lower areas.

Question (4): Every year the hot wind (Khamasin) blows in Egypt.

A- What are the harmful effects of this wind?

B- Suggest some solutions to face this harmful wind.

Question (5):The coasts of Egypt is suffering from the decay.

A- Mention the name of this phenomena.

B- How can we face this problem?

Question (6): Compare:

1- A star to A planet.

2- Tide to ebb.

3- storms and tornadoes.

Question (7): What is the importance of the weather forecasting for:

(1) Farmers (2) Fishermen (3) Car drivers

Question (8): some areas suffer from torrents.

A- What are the reasons of torrents?

B- What are the harmful effects of the torrents?

C- Can you suggest some solution against the torrents?

Question (11): What are the safety precautions for facing the bad weather phenomena?

Question (12): Complete the following table:

Point of comparison	Oxygen	Carbon dioxide
Its ratio in the atmosphere		
Its importance		



General exercise on the first term

Question (1): Complete the following:

1- The space occupied by a cube with one meter side equals ....

2- The moon completes its revolution around the earth in about .... day while the earth completes its revolution around the sun in about ..... day.

3- The water acts as …………... on the burning materials while the sand acts as ……………..... on the burning materials.

4- The phenomena of .... sequence results from the rotation of the earth around its axis, while the .... sequence results from the revolution of the earth around the sun.

5- Silver is a shinny element, it belongs to the .... group while sulpher is an element having luster so it belongs to ....group.

6- The atmospheric pressure is measured by …………..... but the speed of the wind is measured by ....

7- Melting of ice of the two poles is .... change.

8- When adding sodium bicarbonate to vinegar …………………... gas is produced which used in …………………... fires.

9- The nearest planet to the sun is ………......... while ……………... is the farthest planet to the sun.

10- Decreasing the temperature of a liquid change it from ………………... state to ……………..... State

Question (2): Choose the correct answer:

1- The biggest planet in the solar system is ......
(A) The earth (B) mercury (C) Jupiter (D) Mars

2- An example of non metals is ....
(A) Iron (B) Carbon (C) Copper (D) Aluminium

3- The temperature of the atmosphere is measured by ....
(A) Anemometer (B) thermometer (C) Vane (D) Barometer

4- The number of the planets in the solar system is:...........
(A) 4 (B) 6 (C) 8 (D) 9

5- Changing of the matter from a gaseous state to a liquid one is:
(A) Solidification (B) Condensation (C) evaporation (D) melting

6- A phenomenon appears as the result of the attraction between the moon and the earth is:
(A) The successive of day and night
(B) The successive of the seasons of the year
(C) Phases of the moon
(D) Tide and ebb

7- The cooking pots are made up of .....
(A) graphite (B) aluminium
(C) Sulpher (D) Wood.

8- The car Frames are made up of iron because it is .....
(A) good conductor to heat (B) malleable and ductile
(C) has a luster (D) has a higher boiling point

Question (3): Write the scientific term:

1- Everything occupies a space and has a mass.

2- Shinning objects radiate light and heat and appears in the sky at night.

3- A layer of iron oxide forms on a piece of iron.

4- Dark objects revolve around the sun and we live on it.

5- Coldness of the water vapour of the clouds and falls as rains.

6- Chemical change happens when the temperature rises to the degree of combustion in the presence of oxygen.

7- Dark object reflects the fallen sun rays on its surface

8- strong storm with spiral form.

Question (4): give the scientific reasons:

1- The moon is a dark object, but we see it shinny in the dark.

2- The shape of a piece of copper has definite shape when we carry it from a vessel to another one.

3- The occurrence of tides and ebbs .

4- Getting rid of wasts by burning is harmful to the surrounding environment .

5- It is preferable building houses on the tops of the mountains to the bottom of the mountains.

6- painting the tools made up of iron before using

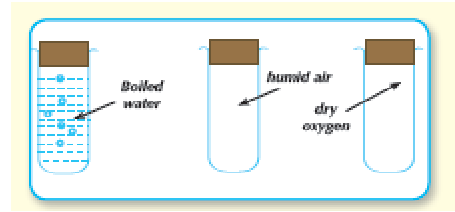




Question (5): Match:

(A)	(B)
1- Mercury 2- The earth 3- Jupiter 4- Neptune 5- Mars	(A) is called the red planet. (B) The biggest planet. (C) The farthest planet from the sun. (D) The smallest planet. (E) Second planet to the sun. (F) Third planet to the sun.

Question (6):
(A) If you put a nail made up of iron in each tube of these. Which nail will rust? Why?



Question (7): Give reasons:

1- Day and night sequence .

2- The sequence of the four seasons of the year .

3- Tide and ebb.

Question (8):
(A) you have unknown element, how can you know is it metal or non metal? using two different methods.

(B) The following objects are made up of iron which of them has the least mass and the least volume

